

Invention disclosure report

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1. Title

Delivery time notification system which is possible to change delivery time and location just before delivery

2. Abstract

Online ordering and home delivery of grocery is coming popular. But there are several problem to make delivery. And it is still inconvenient.

The most big inconvenience is that consumer can not know the exact time of delivery. And for delivery company, the problem is that when they arrived a home to delivery, there is no one who receives deliverables.

This invention will solve this problem using new computer and network technology.

The objectives of this invention are

To notify the times slot of delivery more exactly in several ways such as via internet, via cellular phone and via pager.

To give a chance changing delivery time just before truck arrives her home.

To notify the cost to change the delivery time along with the time she requests.

3. Suggested Claims

- 1) Delivery Scheduling Computer that have information of delivery schedule.
- 2) Delivery Scheduling Computer, which is capable to calculate delivery usually, based on mileage.
- 3) Delivery Scheduling Computer that is connected to customer's PC via such as Internet.
- 4) Delivery Scheduling Computer which is connected to mobile PC via RF network to send /receive delivery related information.
- 5) Delivery Scheduling Computer that is capable to re-calculate estimated delivery time based on actual delivery time for previous customer.
- 6) Mobile PC located at delivery truck or held by delivery man which is capable to store delivery related information such as delivery order, estimated delivery time, actual delivery time and status. Status column have at least three status, waiting, in progress and done.
- 7) Mobile PC which have real time clock. And when status is changed to done, the updated status will be sent to Delivery Scheduling Computer with time stamp. Then Delivery

- Scheduling Computer update delivery schedule stored in it.
- 8) Delivery Scheduling Computer which is capable to call customers pager or cellular phone in advance of delivery. Customer is possible to define how many minutes will she get call in advance.
 - 9) Delivery Scheduling Computer, which is capable to get request from customer about change of delivery time and/or location. And Delivery Scheduling Computer can calculate the cost of change usually based on mileage increase. This cost is informed to customer to confirm if he/she accept the cost to be charged.
 - 10) Delivery Scheduling Computer is possible to get change request several type of connection such as Internet, cellular and pay phone. Incase of payphone and cellular, change operation is done using number key of phone.

4.Details

4.1 Delivery time notification

The customer's, for example Mrs. Robert's, PC is connected to Store via Internet. The customer can order grocery via Internet and will have estimated delivery time slot for example between 1PM and 3PM.

The delivery truck is equipped with mobile PC and radio connection to store. There is a data in the mobile PC which includes customer name, estimated delivery time, actual delivery time and status. Also the order of each line is same as order of delivery sequence. Once delivery was made, the delivery man will change the status to 'Done' and actual delivery time is stored to the column.

This information is sent from truck to store via RF connection. And the information in the computer at store will be updated.

If the actual delivery time is different from estimated delivery time, the estimated delivery time of following customers will be shifted along with the actual delay of delivery. This re-calculation will be made continuously on each delivery.

In this way, the estimated delivery time will be exact.

Customer can get most exact delivery time in several ways.

- 1) Customer's PC which is connected to store via Internet will get latest estimated delivery time continuously. It is very convenient for customer. Because if customer only knows the time slot for example between 1PM and 3PM, she have to be in home from 3PM until delivery time. But as a result of this invention, customer can get more exact delivery time for example 14:10+10Min, she can go out between 1PM through 2PM.
- 2) Customer can get call to pager before customer defined time from delivery. For example when customer defined 25 minutes, Delivery Scheduling Computer will call customer's pager before 25 minutes from latest estimated delivery time. It is also possible for customer to get call for customer's cellular phone.

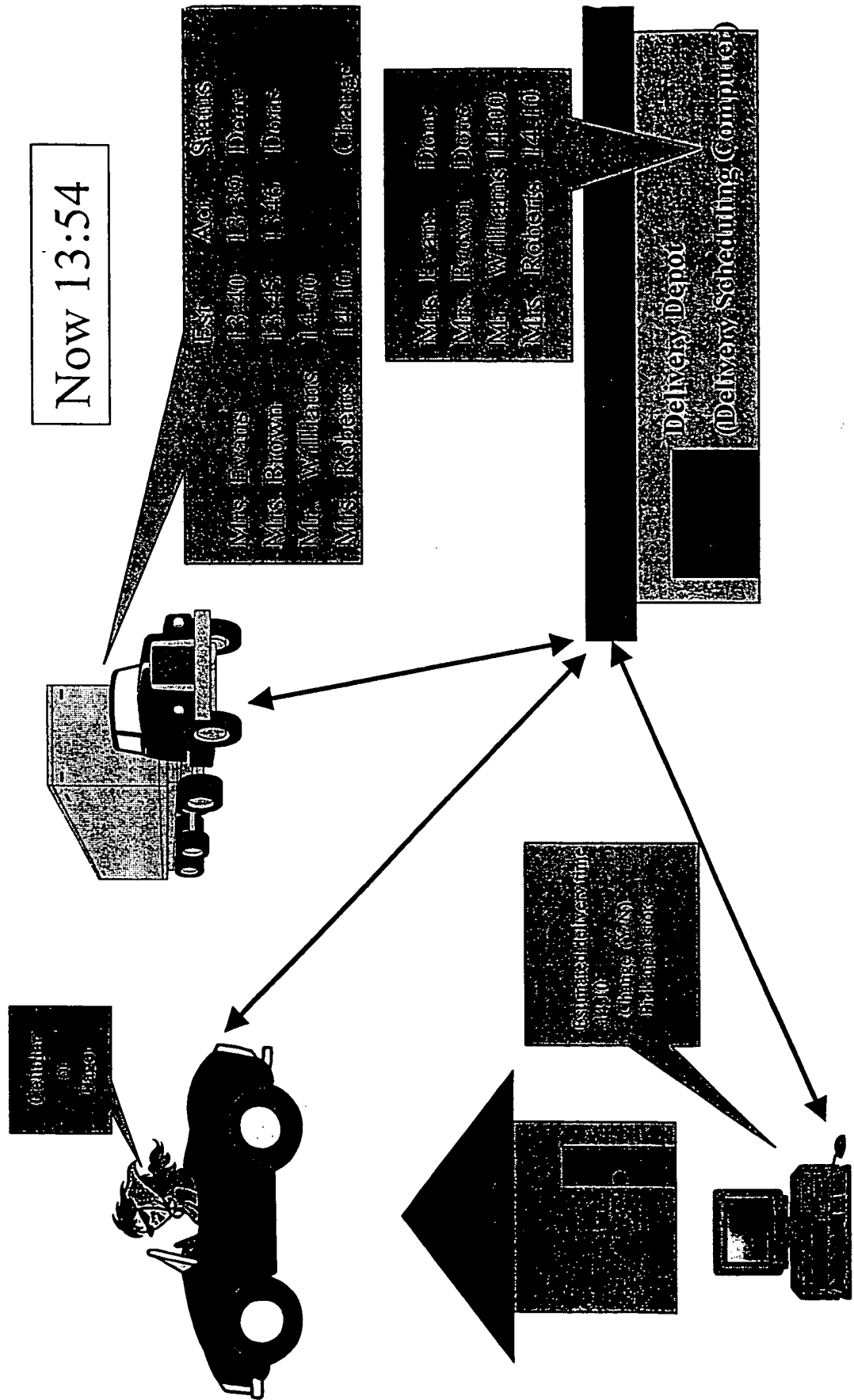
It is very convenient for customer. Because customer doesn't have to wait in her home until estimated delivery time is notified. For instance if it takes 15 minutes from her office to home, she can get call 20 minutes advance from estimated delivery. Then she can minimize the time loss.

4.2 Change of delivery time and/or location

Some time it will be impossible for customer to stay in home or back to home before delivery time. In that case this invention will make it possible to customer to change the delivery time or location. It works as follows:

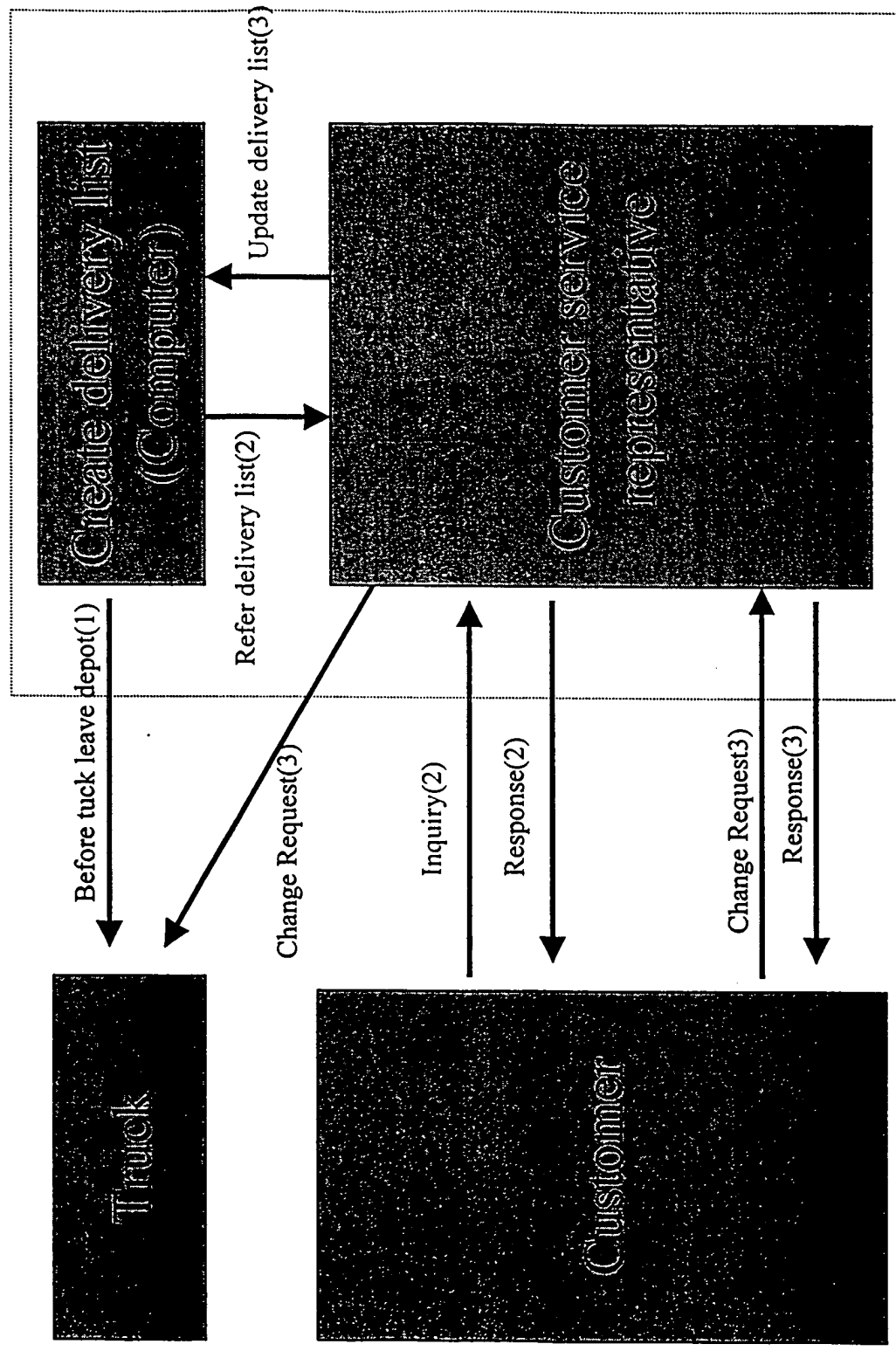
- 1) When customer find that she have to leave home 1 hour before the estimated delivery time, she operates her home PC to send request of delivery time change to Delivery Scheduling Computer. Then Delivery Scheduling Computer update the data of delivery schedule, and send to mobile PC at delivery truck. Then truck will cancel the delivery on original delivery time and will delivery new requested time slot.
- 2) Some time it is more convenient for customer to pick-up at store than change home delivery time. In that case, customer can send that request to Delivery Scheduling Computer, and Delivery Scheduling Computer command truck to carry back the deliverables of requested customer to store. Then customer can pick up merchandise at store. In this case, customer can get estimated time when her merchandise will be back to store.
- 3) Some time the change of delivery time and sequence will cost. And this cost will be charged to customer. When Delivery Scheduling Computer received the request of time change, Delivery Scheduling Computer re-schedules the delivery order of truck. And it is possible for Delivery Scheduling Computer to calculate the increase of truck mileage. For example, the increase of mileage is 3 miles, that cost \$2.50. Then Delivery Scheduling Computer can confirm if customer accept this additional charge to customer. When it is accepted by customer, new delivery order will be sent to mobile PC at truck.

Invention Overview



M.Sone

Block Diagram (Legacy delivery system)



Explanation (Legacy delivery system)

- (1) A computer create delivery list based on order list. Delivery list is a table that includes following items.

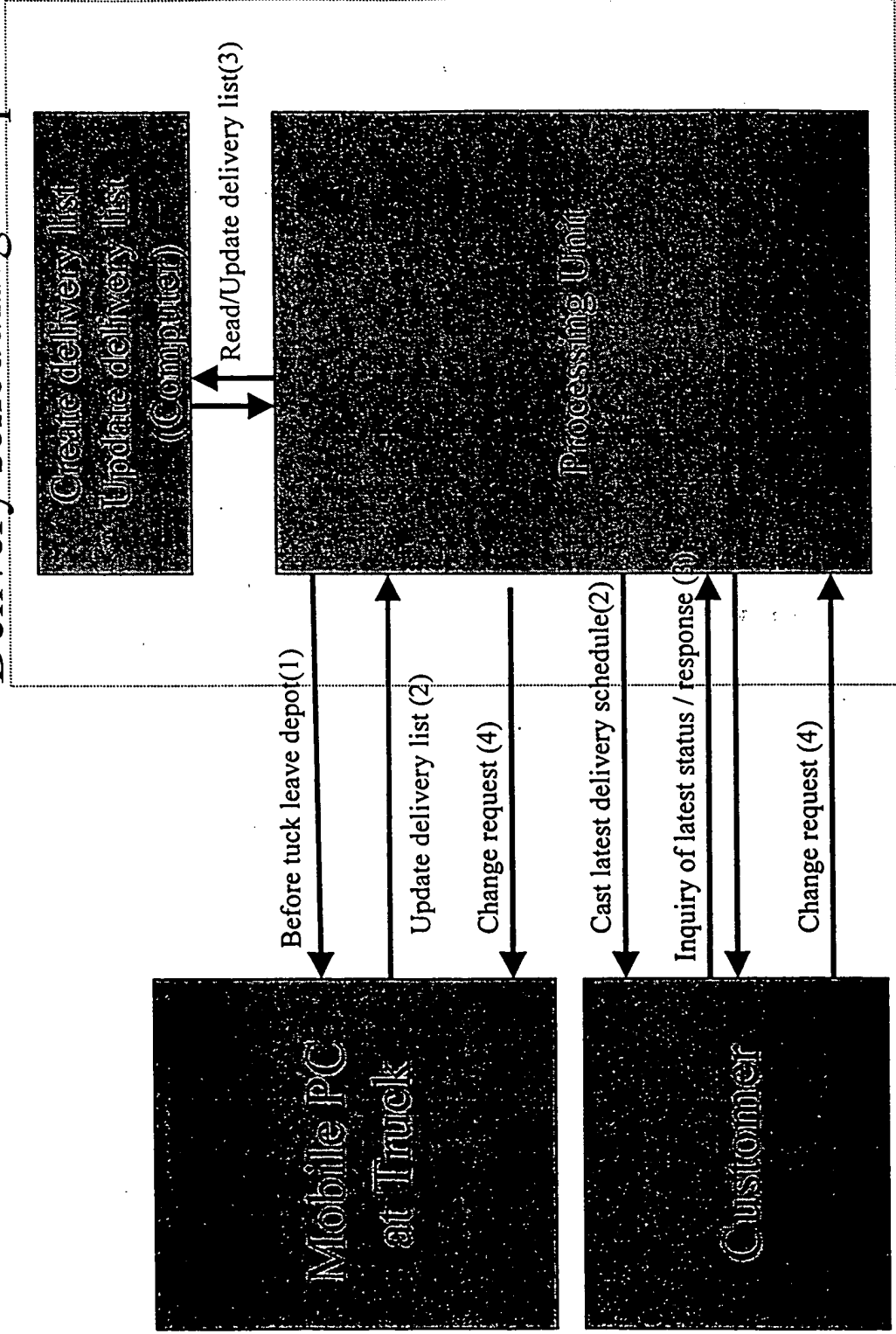
Customer ID
Customer name
Customer Address
Sequence of delivery
Estimated delivery time

Then this table is copied to mobile PC located truck before leaving depot.

- (2) When customer inquire delivery status via phone , customer service refer the delivery list. Then customer service respond the information to customer. But this information is not updated based on progress of delivery.
- (3) When customer request change of delivery time or location, customer call to customer service. Then customer service call to delivery delivery man at truck via RF or cellular phone. Then delivery man change the delivery schedule for this customer. Also customer service update the delivery list.

Block Diagram (New system)

Delivery scheduling computer



Explanation (New system)

- (1) A computer create delivery list based on order list. Delivery list is a table that includes following items.

Customer ID
Customer name
Customer Address
Sequence of delivery
Estimated delivery time
Actual delivery time (Blank at creation)
Status (Waiting/ In progress/Done)
Prior notify (Minutes, Destination such as cellular phone No.)

Then this table is copied to mobile PC located truck before leaving depot.

- (2) When delivery is made, time stamp is sent to Delivery Scheduling Computer. And delivery list is updated. At same time, latest estimated delivery time is sent or cast to customer. When customer requesting prior notify option, Processing Unit automatically call defined destination such as cellular phone.
- (3) When customer inquire the status, latest estimated delivery time is notified from Delivery Scheduling Computer which have latest information.

Explanation (New system)

(4) When customer request change of delivery time or location, customer call or send information to Processing Unit. Then Processing Unit send this request to mobile PC at truck. At same time, Processing Unit update delivery list.
In case this change cause additional cost, Processing Unit send estimated cost based on additional mileage of truck.

<Example>

A customer request later delivery. Then delivery for this customer is queued to end of delivery list. Then Delivery Scheduling Computer recalculate total mileage of this truck. Total mileage is increased 3 miles. Then this customer charged \$3.00.
(In this sample, additional cost is calculated $\$1.00 / 1 \text{ mile}$)

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